

DEPARTMENT of ENVIRONMENTAL SERVICES  
Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

**MORPHOMETRIC:**

Lake: PEMIGEWASSET LAKE	Lake Area (ha):	97.61
Town: MEREDITH	Maximum depth (m):	8.8
County: Belknap	Mean depth (m):	2.4
River Basin: Merrimack	Volume (m <sup>3</sup> ):	2329500
Latitude: 43°36'54" N	Relative depth:	0.8
Longitude: 71°35'41" W	Shore configuration:	1.74
Elevation (ft): 559	Areal water load (m/yr):	6.70
Shore length (m): 6100	Flushing rate (yr <sup>-1</sup> ):	2.80
Watershed area (ha): 1346.8	P retention coeff.:	0.61
% watershed ponded: < 0.10	Lake type:	natural

**BIOLOGICAL:**

3 January 1994

24 August 1993

DOM. PHYTOPLANKTON (% TOTAL)	#1	ASTERIONELLA 90%	CHRYSOSPHAERELLA 40%
	#2	DINOBRYON 10%	DINOBRYON 20%
	#3		COELOSPHAERIUM 20%
PHYTOPLANKTON ABUNDANCE (cells/mL)			985
CHLOROPHYLL-A (µg/L)			0.90
DOM. ZOOPLANKTON (% TOTAL)	#1	KELICOTTIA 23%	NAUPLIUS LARVA 25%
	#2	POLYARTHRA 18%	KERATELLA 23%
	#3	KERATELLA 15%	
ROTIFERS/LITER		42	65
MICROCRUSTACEA/LITER		6	81
ZOOPLANKTON ABUNDANCE (#/L)		60	159
VASCULAR PLANT ABUNDANCE			Common/Abun
SECCHI DISK TRANSPARENCY (m)			3.8
BOTTOM DISSOLVED OXYGEN (mg/L)		11.3	0.2
BACTERIA (E. coli, #/100 ml)	#1		1
	#2		8
	#3		

**SUMMER THERMAL STRATIFICATION:**

weakly stratified

Depth of thermocline (m): None  
Hypolimnion volume (m<sup>3</sup>) : None  
Anoxic volume (m<sup>3</sup>) : 29000

**CHEMICAL:**

Lake: PEMIGEWASSET LAKE  
Town: MEREDITH

	3 January 1994		24 August 1993		
DEPTH (m)	2.5	4.5	3.0		6.0
pH (units)	6.5	6.4	6.7		6.3
A.N.C. (Alkalinity)	3.9	4.0	3.8		4.1
NITRATE NITROGEN	< 0.02	0.02	< 0.02		< 0.02
TOTAL KJELDAHL NITROGEN	0.20	0.30	0.38		0.37
TOTAL PHOSPHORUS	<0.001	<0.001	0.012		0.011
CONDUCTIVITY ( $\mu$ mhos/cm)	44.9	45.0	40.8		41.5
APPARENT COLOR (cpu)	18	18	38		38
MAGNESIUM			0.51		
CALCIUM			2.1		
SODIUM			4.3		
POTASSIUM			< 0.40		
CHLORIDE	7	7	6		6
SULFATE	5	5	4		4
TN : TP			32		34
CALCITE SATURATION INDEX			3.7		

All results in mg/L unless indicated otherwise

**TROPHIC CLASSIFICATION: 1993**

D.O. S.D. PLANT CHL TOTAL CLASS

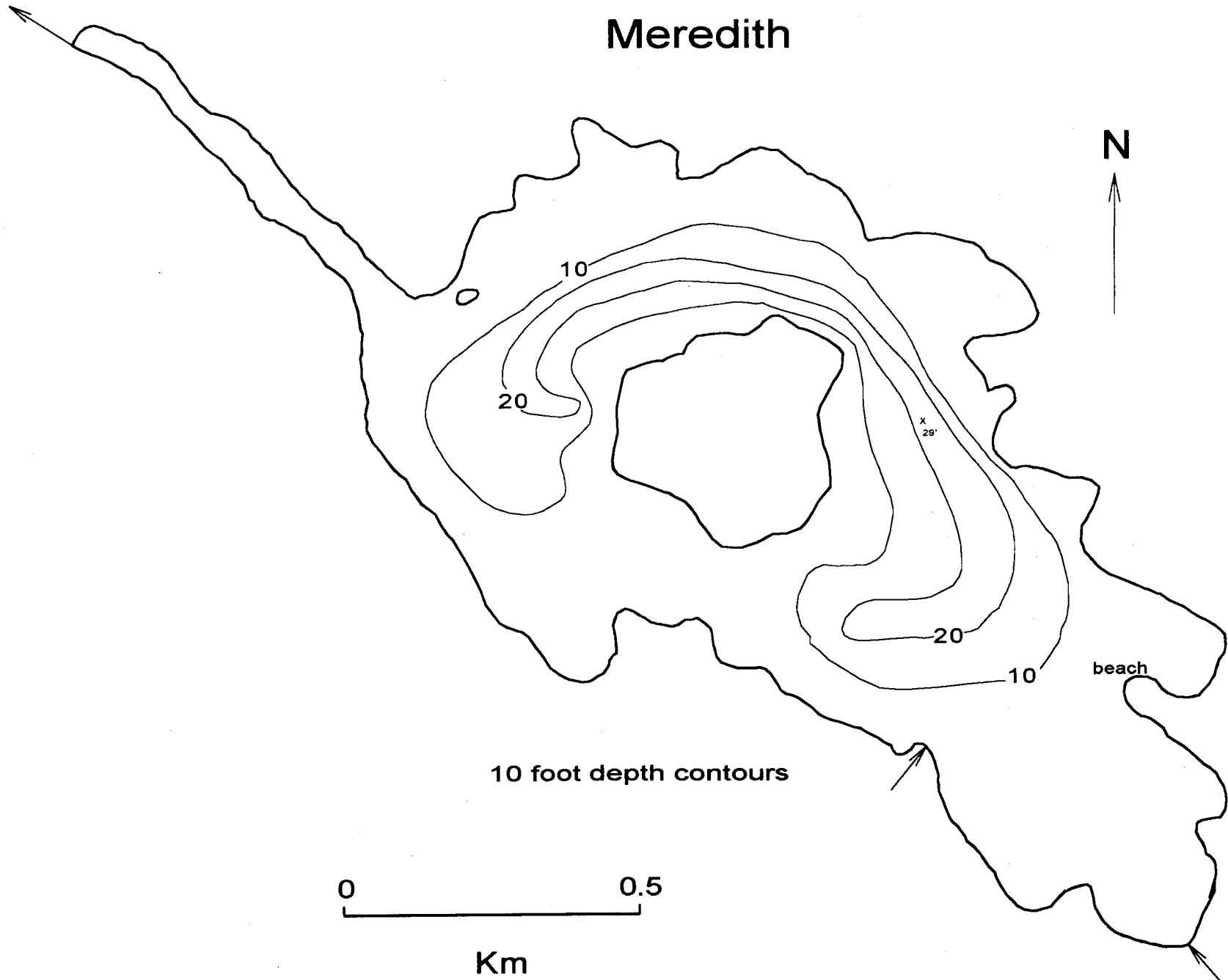
**	2	4	0	6	Meso.
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**COMMENTS:**

1. A.K.A. Kelly Pond.
2. This pond was previously surveyed and classified in 1980. There was no change in trophic classification or in overall quality, but specific parameters were different--some better, some worse. The chlorophyll declined from 7.7 mg/m<sup>3</sup> to less than one (which is good), but the bottom dissolved oxygen also declined, going from 3.0 to 0.2 mg/L (which is bad). The 1993 phosphorus values were half the 1980 values. More frequent sampling (such as through a volunteer monitoring program) is needed to discern specific water quality trends.
3. Mallomonas (30%), Merismopedia (20%) Cryptomonas (15%) and Chroomonas (15%) were the dominant genera of wholewater phytoplankton.

# Pemigewasset Lake

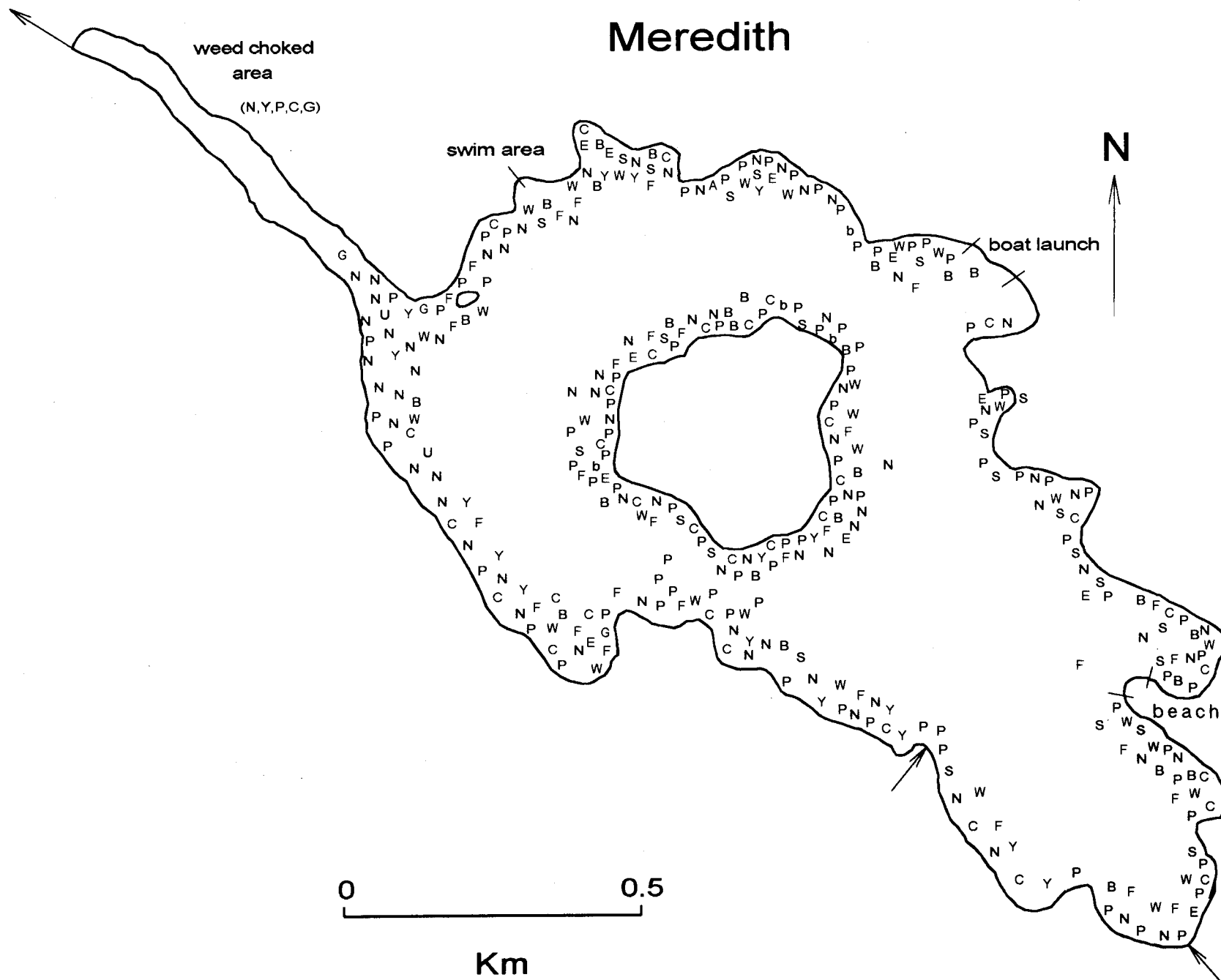
Meredith





# Pemigewasset Lake

Meredith



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